

Application No. 10/721,308
Amendment dated September 30, 2005
Reply to Office Action of June 30, 2005

REMARKS

This Amendment is submitted in response to the Official Letter dated June 30, 2005. Favorable reconsideration of the application, is respectfully requested. The Examiner rejected Claims 1 and 3 - 17 under 35 U.S.C. 102 (a) as being anticipated by WO 03/029062 to Woll (hereinafter, "Woll '062"), or under 35 U.S.C. 102 (e) as being anticipated by U.S. Published Patent Application No. US2004/0207252 A1 (hereinafter, "Woll '252"), or under 35 U.S.C. 102 (b) as being anticipated by U.S. Patent No. 5,934,767 to Schmidt et al. (hereinafter, "Schmidt '767"), or under 35 U.S.C. 102 (a) as being anticipated by DE 10203517 to Atz et al. (hereinafter, "Atz '517").

The claimed invention is not shown or suggested in any of the art of record. The Woll '062 and Woll '252 references disclose a hydraulic braking system operated by an external force. Specifically, the Woll references disclose (see Woll '252, paragraph 53) that the valves 6, 7, and 8 can be activated by the control 17 in such a way that the pressure in the braked and/or non-braked state is limited to a permissible amount. There is however, no disclosure in the Woll references of how such pressure limitation is accomplished.

The Atz '517 reference discloses a hydraulic braking system with an oscillation damping device inserted in the hydraulic circuit in front of the hydraulic wheel brake operator. The Atz '517 reference is a German language document of which the Examiner provided no English language translation. Applicants' attorney however, obtained a translation of paragraphs 29, 30, and 39 through 42, which are believed to be the most pertinent paragraphs (see Attachment 1). As translated, the Atz '517 reference does not teach or suggest the invention as claimed.

The Schmidt '767 reference discloses a hydraulic motor vehicle power brake system with at least one brake that can be electronically controlled. The brake system includes a normally closed first valve 5 having a closing spring 30 and an exciter coil 31, and a normally open second valve 6 having an opening spring 41 and an exciter

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coil 42. In operation, and in response only to a change in wheel brake pressure, the control device 11 controls the first and second excitation controllers 48 and 49, such that the coils 31 and 42, respectively act on the armatures 32 and 43 to counter the force of the springs 30 and 41. The Schmidt '767 reference does not teach or suggest controlling excitation in order to relieve an over-pressure condition, such as at the accumulator.

Thus, neither the Woll '062 reference, the Woll '252 reference, the Schmidt '767 reference, nor the Atz '517 reference show or suggest limiting pressure of the source of pressurized fluid by electrically opening both the apply valve and the release valve from the positions required to control pressure at the hydraulic load a sufficient amount to permit pressurized fluid from the source of pressurized fluid to flow through the apply valve and the release valve to the low pressure reservoir at a flow rate sufficient to limit pressure of the source of pressurized fluid to less than the maximum desired fluid pressure value, as recited in amended Claim 1.

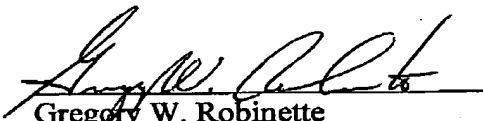
Further, none of the cited references show or suggest sensing an accumulator pressure, comparing the sensed accumulator pressure to a preset pressure set-point, controlling at least one valve in the valve arrangement to allow fluid to flow through the valve if the sensed accumulator pressure at least equals the preset pressure set-point, determining that the pump is running while accumulator pressure is above a pump shut-off pressure, and providing a signal to bias the at least one valve to rapidly open to a point in excess of that which would be demanded based on accumulator pressure alone in anticipation of further pressure rise due to the pump failing to shut off, as recited in amended Claim 3.

Additionally, the cited references neither show nor suggest a method wherein when sensed pressure of the source exceeds the maximum desired fluid pressure value, pressure of the source of pressurized fluid is controlled by simultaneously electrically opening both the associated apply valve and the associated release valve from the positions required to control pressure at the at least one brake a sufficient amount to

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permit pressurized fluid from the source of pressurized fluid to flow through the associated apply valve and the associated release valve to the low pressure reservoir to lower pressure at the source of pressurized fluid to a value below the maximum desired fluid pressure value, as recited in amended Claim 9.

Respectfully submitted,


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Attachment 1 to Amendment dated September 30, 2005

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Translation of selected paragraphs of DE 10203517 to Atz et al.

[0029] In normal operation, the block valve 10 or valves 10 are closed. As soon as the driver desires to brake the vehicle, he/she actuates the pedal 11. A sensory mechanism (not illustrated) then generates a signal "Pedal actuated." This causes a controller 12, which on the output side is connected to the operating magnets of the intake and discharge valves 6 and on the input side is connected to the pressure sensors 13 and 14 on the accumulator 4 and between the intake and discharge valves 5 and 6, to predefine a proper desired value for the hydraulic pressure on the displacement units 7 and produce the desired value by suitable adjustment and actuation of the intake and discharge valves 5 and 6. In this case the hydraulic pressure on the displacement units 7 is determined from the signals of the pressure sensors 14.

[0030] The controller 12 continuously monitors the pump arrangement 2 and accumulator 4 for correct function by interrogating the load pressure of the accumulator 4, which is detected by the pressure sensor 13, and holding it within a preset pressure range by suitable operation of the pump arrangement 2. For this, the controller correspondingly actuates the motor 1. Instead of this, it is also possible to control a coupling (not illustrated) arranged between motor 1 and pump arrangement 2, even in the case of a continuously running motor 1.

[0039] In accordance with the drawing, all valves 5, 6 and 10, regardless of their type, are configured as control or on-off valves, preferably as seat-controlled valves, to guarantee a leak-proof closed position.

[0040] It is moreover preferably provided that the above valves 5, 6 and 10 are configured in such a manner that they act like pressure relief valves in their closed position and can thus limit the maximum pressure attainable in the hydraulic system.

[0041] Instead of this, it is also possible to arrange an additional pressure relief valve on the delivery side of pump arrangement 2.

[0042] As for the rest, the controller 12 may control the work of pump arrangement 2 by properly actuating the motor 1, or by actuating a clutch (not illustrated) between motor 1 and pump arrangement 2, and also by actuating the valves 5, 6 and 10 in such a manner that the pressure reported by pressure sensors 13 and 14 remains beneath a maximum pressure threshold permissible at the time.